

## Polymer Electrolytes Crosslinked by E-Beam

### Abstract

A method of making a crosslinked polymer is provided as well as the  
5 polymer so made, the method comprising the steps of: providing a highly fluorinated  
fluoropolymer, typically a perfluorinated fluoropolymer, comprising pendent groups  
which include a group according to the formula  $-SO_2X$ , where X is F, Cl, Br, OH, or  
 $-O-M^+$ , where  $M^+$  is a monovalent cation, and exposing said fluoropolymer to electron  
beam radiation so as to result in the formation of crosslinks. Typically, the method  
10 according to the present invention additionally comprises the step of: forming said  
fluoropolymer into a membrane, typically having a thickness of 90 microns or less,  
more typically 60 microns or less, and most typically 30 microns or less.